

# A note on *Lonchophylla* (Chiroptera : Phyllostomatidae) from Ecuador and Peru, with the description of a new species

J. E. Hill

Department of Zoology, British Museum (Natural History) Cromwell Road, London SW7 5BD

## Introduction

The glossophagine genus *Lonchophylla* extends from Nicaragua to Peru, Bolivia, Brazil and Surinam. Of the six species currently recognised (Jones & Carter, 1976 : 15; Sazima, Vizotto & Taddei, 1978 : 81) *L. concava*, *L. robusta* and *L. thomasi* are comparatively widespread: another, *L. hesperia*, has been reported only from Peru, and the recently described *L. bokermanni* Sazima, Vizotto & Taddei, 1978 is known solely from the type locality in Minas Gerais, Brazil. Only *L. mordax* has been recorded from Ecuador, by Baker (1974 : 136), at a location 45 km NE of Chone (00°41'S, 80°05'W) in Manabi Province in the northwestern coastal belt, but occurs also in Bolivia and Brazil.

Specimens of *Lonchophylla* were obtained in 1976 by Mr. A. M. Hutson of the Department of Entomology, British Museum (Natural History), London and Mr. R. E. Stebbings of the Institute of Terrestrial Ecology, Monks Wood Experimental Station, Abbots Ripton, Huntingdon, England, while collecting at Yaupi and Los Tayos, Morona Santiago Province, in southeastern Ecuador near the border with Peru. Some represent *L. robusta* but others cannot be assigned to any of the described species: specimens similar to these have been reported (as *L. robusta*) from Peru.

Specimens examined or discussed are in the British Museum (Natural History) (BM(NH)), London; the United States National Museum of Natural History (USNM), Smithsonian Institution, Washington; the American Museum of Natural History (AMNH), New York, and the Texas Wildlife Cooperative Research Collection (TCWC), Texas A & M University, College Station, Texas.

## *Lonchophylla robusta* Miller, 1912

MATERIAL EXAMINED. ECUADOR: Yaupi, Morona Santiago Province, 02°93'S, 77°54'W. ♀♀ BM(NH) 78.1354–1355, 78.1358–1362, sex unknown 78.1356–1357 (all in alcohol, skulls extracted). 30 July 1976.

REMARKS. Although not hitherto recorded from Ecuador, *Lonchophylla robusta* is known to occur in Costa Rica, Panama, Venezuela and Colombia (Jones & Carter, 1976 : 16; Sazima, Vizotto & Taddei, 1978 : 81). Specimens from Yaupi agree closely with the diagnosis and description by Miller (1912 : 23) and are similar in size (Table 1) to those from Costa Rica and Panama reported by Walton (1963 : 88) or from Venezuela by Linares (1967 : 60).

## *Lonchophylla handleyi* sp. nov.

HOLOTYPE. BM(NH) 78.1368. Adult ♀ (in alcohol, skull extracted). Los Tayos, Morona Santiago Province, Ecuador, 03°07'S, 78°12'W. 14 July 1976. Collector's Number 36.

OTHER MATERIAL EXAMINED. ECUADOR: Los Tayos. ♂♂ BM(NH) 78.1364, 78.1366, 78.1369–1370, 78.1372, ♀♀ 78.1363, 78.1367, 78.1371 (all in alcohol, skulls extracted), 78.1373 (in alcohol), 78.1374–1376 (all in alcohol, skulls extracted). 10–26 July 1976. ♂

Table 1 Measurements (in millimetres) of *Lonchophylla robusta* and *L. handleyi*

	<i>L. robusta</i> Ecuador			Ecuador			<i>L. handleyi</i>				
	Number of specimens	Range	Mean	Number of specimens	Range	Mean	Holotype ♀ BM(NH) 78.1368 Los Tayos, Ecuador	♀ USNM 364347 Peru	♂ USNM 507172 Peru	♂ AMNH 230214* Peru	♀ TCWC 11879** Peru
Length of forearm	9	42.3-45.5	(43.3)	18	44.4-47.9	(46.1)	45.6	46.1	47.0	44.7	45.1
Length of tibia	9	16.0-17.5	(16.8)	18	17.0-18.5	(18.0)	17.5	18.3	17.8	15.4	15.6
Width of interferromembrane at centre	9	12.3-14.3	(13.4)	18	8.0-11.4	(9.3)	10.0	8.6	9.2	5.9	7.0
Greatest length of skull	9	25.3-26.2	(25.9)	16	27.5-29.2	(28.5)	28.5	27.4	27.4	26.9	27.5
Condylbasal length	9	23.7-24.6	(24.2)	16	26.3-28.1	(27.2)	27.2	26.2	26.5	25.9	25.4
Condylacanine length	9	23.0-23.9	(23.5)	16	25.5-27.2	(26.4)	26.3	25.3	25.5	25.0	24.8
Basal length	9	21.7-22.6	(22.2)	16	24.0-25.6	(25.0)	24.7	23.8	23.9	23.3	23.4
Palatal length	9	13.6-14.4	(13.9)	15	16.1-17.5	(16.8)	16.8	15.9	16.0	15.4	15.4
Length of bony palate (m <sup>3</sup> -m <sup>3</sup> to palation)	9	3.5-3.9	(3.7)	16	5.0-5.5	(5.3)	5.4	5.1	5.1	4.4	5.0
Length of mesopterygoid canal (palation to tips of hamulars)	7	3.7-4.1	(3.9)	16	3.2-4.1	(3.8)	3.9	3.9	4.0	3.9	3.9
Width of rostrum above canine roots	9	3.7-4.1	(3.9)	16	4.2-4.4	(4.3)	4.2	4.2	4.2	3.9	4.2
Width of rostrum across anteorbital foramina	9	4.2-4.7	(4.4)	16	4.7-5.0	(4.9)	4.8	4.8	4.9	4.5	4.9
Least interorbital width	9	4.7-5.2	(4.9)	16	4.9-5.2	(5.0)	4.9	5.2	5.2	4.6	5.0
Least postorbital width	9	5.0-5.3	(5.1)	16	5.1-5.5	(5.3)	5.2	5.3	5.1	5.0	5.3
Width of braincase	9	9.7-10.1	(9.9)	16	10.0-10.5	(10.2)	10.3	10.4	10.1	9.7	10.5
Mastoid width	9	10.2-10.8	(10.5)	16	10.9-12.0	(11.4)	11.6	11.4	11.3	10.6	11.0
c'-c' (crowns)	9	4.0-4.4	(4.2)	16	4.5-4.9	(4.7)	4.6	4.5	4.7	4.2	4.5
m <sup>2</sup> -m <sup>2</sup> (alveoli)	9	6.1-6.5	(6.3)	16	6.6-7.0	(6.8)	6.7	6.7	6.7	6.1	6.1
Width of mesopterygoid fossa	9	1.9-2.1	(2.0)	16	1.8-2.2	(2.0)	2.0	2.0	1.8	1.4	2.1
c-m <sup>3</sup>	9	9.1-9.6	(9.4)	16	10.2-11.0	(10.6)	10.4	10.1	10.1	10.0	10.0
Length complete mandible from condyles	8	17.0-17.6	(17.3)	14	19.1-20.3	(19.8)	19.8	19.2	19.0	—	18.5
Length of right ramus from condyle	9	17.5-18.2	(17.9)	14	19.6-21.0	(20.3)	20.3	19.8	19.5	19.2	18.8
c-m <sub>3</sub>	9	9.5-10.0	(9.8)	16	10.5-11.4	(10.9)	10.7	10.4	10.4	10.3	10.3

\* measured by Dr. K. F. Koopman \*\* measured by Professor W. B. Davis

Collector's Number 35 (in alcohol), ♀ 11 (in alcohol, skull extracted). Yaupi, Morona Santiago Province, 02°93'S, 77°54'W. ♂ BM(NH) 78.1377, ♀ 78.1378 (both in alcohol, skulls extracted). 30 July 1976. PERU: San Juan, Oxapampa Province, Pasco Department, 900 ft, 10°30'S, 74°53'W. ♀ USNM 364347 (skin and skull). 5 August 1964. 3.2 km N of Vitoc, Rio Tulamayo, Tarma Province, Junin Department, 700 m, c. 11°10'S, 75°15'W. ♂ USNM 507172 (skin and skull). 16 November 1974.

OTHER MATERIAL DISCUSSED. PERU: 3 km NW of San Ramón, Tarma Province, Junin Department, 2900 ft, 11°08'S, 75°22'W. ♂ AMNH 230214 (skin and skull). 28 June 1964. 3 mi S of Tingo Maria, Huanucu Province, Huanucu Department, 2400 ft, c. 09°09'S, 75°56'W. ♀ TCWC 11879 (skin and skull). 28 August 1964.

DIAGNOSIS. Readily distinguished from *Lonchophylla hesperia*, *L. mordax*, *L. concava*, *L. thomasi* and *L. bokermanni* by greater size; similar in most respects to *L. robusta* but generally larger (Table 1); interfemoral membrane or uropatagium narrower, with a sparse fringe of short hairs along much of its posterior margin; bony post-palate absolutely and relatively longer, its lateral margins more flange-like and its palatal face more deeply excavated, the median palatal furrow extending further posteriorly almost to the anterior edge of the mesopterygoid fossa; internal basal cusp of second upper premolar (pm<sup>4</sup>) less developed.

DESCRIPTION. Largest (length of forearm 44.4–47.9 mm, greatest length of skull 26.9–29.2 mm) of the genus *Lonchophylla* as currently known; muzzle elongate; noseleaf low, broadly based, its lateral margins faintly concave; ears large, broad and rounded as in *L. robusta*; tragus spatulate, its length about one third the length of the ear; tail short or very short, usually as in *L. robusta* just emerging from the dorsal surface of the interfemoral membrane about halfway across its width but sometimes barely perceptible; interfemoral membrane narrow, the more central part of its posterior margin edged with a sparse fringe of short hairs; wings inserted at the ankle; calcar short, cartilaginous.

Skull generally similar to that of *L. robusta*; rostrum long and broad, especially anteriorly at the canine alveoli; braincase full, rounded; bony post-palate long, its lateral margins projecting slightly as a narrow flange; V-shaped median longitudinal palatal furrow extending posteriorly almost to the mesopterygoid fossa so that the post-palatal extension is centrally grooved for much of its length, in contrast to the flatter, less deeply excavated post-palate of *L. robusta*; mesopterygoid canal relatively short; coronoid process high and prominent.

Dentition normal for the genus, the teeth generally a little more massive than those of *L. robusta*, but with the upper premolars (pm<sup>3-4</sup>) and the first and second lower premolars (pm<sub>2-3</sub>) about the same size as in that species; postero-internal basal cusp of pm<sup>4</sup> small and undeveloped, occasionally very small and insignificant; first and second upper molars with long inner margin, their crowns subsquare, lower molars with broad crowns; lower incisors faintly trilobate.

REMARKS. Tuttle (1970 : 68) tentatively allocated two specimens (USNM 364347, AMNH 230214) from Peru to *Lonchophylla robusta*, observing that they were larger than typical examples of this species and had a narrow interfemoral membrane with a sparse but distinct fringe of short hairs along its posterior edge. Subsequently, Gardner (1976 : 5) referred a third Peruvian example (USNM 507172) to *L. robusta* and remarked that it compared favourably with most of the characters outlined by Tuttle for his material. These specimens are the basis of the brief discussion of records of *L. robusta* from Peru by Koopman (1978 : 6). Two (USNM 364347, USNM 507172) have been examined and clearly represent *L. handleyi*. The measurements (Table 1) of the third (AMNH 230214) and of an unrecorded Peruvian example (TCWC 11879) of *Lonchophylla* refer these also to this species, although the bony palate of AMNH 230214 is rather shorter than is usual in *L. handleyi*. The skulls of the Peruvian examples of *L. handleyi* so far available are generally a little shorter than are those of specimens from Ecuador.

The two specimens (USNM 364347, USNM 507172) from Peru that have been examined are the only examples seen that have not been preserved in alcohol. Dorsally, both are light brown, with a faint red tinge, the hairs on the head, shoulders and anterior back whitish or slightly creamy at the base and for much of their length, heavily tipped with brown, the pale colour showing clearly on the sides of the throat and on the shoulders. On the lower back the pelage is more nearly unicolorous, the hairs brown for most of their length and pale only at the base. The ventral surface is buffy brown, the hairs on the chin, throat and on the anterior part of the chest unicolorous but posteriorly the hairs are browner at the base with heavy buffy brown tips. There is a sprinkling of brown hairs on both surfaces of the interfemoral membrane: the short, sparse hairs fringing its posterior margin are whitish, in USNM 364347 extending along the edge about halfway to the legs although slightly denser medianly, but USNM 507172 has a more than usually sparse fringe, its few very short hairs concentrated at and near the centre of the edge of the membrane. This specimen has also a very short and inconspicuous tail.

**ETYMOLOGY.** This new species has been named after Dr C. O. Handley, Curator of Mammals at the United States National Museum of Natural History, Smithsonian Institution, Washington. Dr Handley generously placed his notes on the large specimens of Peruvian *Lonchophylla* at my disposal, together with a number of measurements, having recognised some years ago that a new species might be involved.

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#### Literature Cited

- Baker, R. H.** 1974. Records of mammals from Ecuador. *Publs Mich. St. Univ. Mus. Biol. Ser.* 5: 131-146.
- Gardner, A. L.** 1976. The distributional status of some Peruvian mammals. *Occ. Pap. Mus. Zool. La St. Univ. No.* 48: 1-18.
- Jones, J. Knox Jr & Carter, D. C.** 1976. Annotated checklist, with keys to subfamilies and genera. In Baker, R. J., Jones, J. Knox Jr & Carter, D. C. (Eds.). *Biology of bats of the New World family Phyllostomatidae. part 1. Spec. Publs Mus. Texas Tech Univ. No.* 10: 7-38.
- Koopman, K. F.** 1978. Zoogeography of Peruvian bats with special emphasis on the role of the Andes. *Am. Mus. Novit. No.* 2651: 1-33, 3 tabs.
- Linares, O. J.** 1967. Extensión de distribución para *Lonchophylla robusta* con algunas notas sobre las especies venezolanas del género *Lonchophylla* (Chiroptera - Mammalia). *Boln Soc. venez. Espeleol.* 1: 53-59, 3 figs.
- Miller, G. S.** 1912. A small collection of bats from Panama. *Proc. U.S. natn. Mus.* 42: 21-26.
- Sazima, I., Vizotto, L. D. & Taddei, V. A.** 1978. Uma nova espécie de *Lonchophylla* da Serra do Cipó, Minas Gerais, Brasil (Mammalia, Chiroptera, Phyllostomidae). *Revta bras. Biol.* 38: 81-89, 8 figs, 2 tabs.
- Tuttle, M. D.** 1970. Distribution and zoogeography of Peruvian bats, with comments on natural history. *Kans. Univ. Sci. Bull.* 49: 45-86, 2 figs.
- Walton, D. W.** 1963. A collection of the bat *Lonchophylla robusta* Miller from Costa Rica. *Tulane Stud. Zool.* 10: 87-90, 1 fig, 1 tab.